Rev. Acad. Canar. Cienc., XIV (Núms. 3-4), 213-217 (2002) (publicado en agosto de 2003)

A ZOEA ATTRIBUTED TO THE TRAPEZIIDAE (CRUSTACEA: DECAPODA: BRACHYURA) FROM THE CAPE VERDE ISLANDS.

J.A. Lindley[1] , F. Hernández[2] and E. Tejera[2]

[1]Sir Alister Hardy Foundation for Ocean Science, The Laboratory, Citadel Hill, The Hoe, PLYMOUTH, PL1 PB, UK email: jal@pml.ac.uk

[2]Museo de Ciencias Naturales O.A.M.C., Fuente Morales s/n. Antiguo Hospital Civil. 38003 Santa Cruz de Tenerife. Ap. correos 853, Tenerife, Spain. email: fatima@museosdetenerife.org

RESUMEN

Una larva zoea de braquiura con tres pares de espinas laterales en el caparazón y con acusadas proyecciones dorso-laterales en el 4° y 5° segmento abdominal fue capturada en muestreos realizados en las islas de Cabo Verde, durante el Proyecto *Macaronesia 2000.* El ejemplar se hallaba en estado II y pertenece a la misma especie que las larvas halladas en estado III y IV en el Gran Banco Meteor (RICE & WILLIAMSON [9]). El ejemplar se describe y su probable identificación se discute.

Palabras clave: Océano Atlántico, islas de Cabo Verde, plancton, Decapoda, Trapeziidae, zoea II.

ABSTRACT

A brachyura zoea with three pairs of lateral spines on the carapace and prolonged dorso-lateral projections on the 4th and 5th abdominal segments was taken in the *Macaronesia 2000* Programme samples from the Cape Verde Islands. The specimen was a stage II zoea, apparently of the same species as specimens of stages III and IV known from the Great Meteor Seamount (RICE & WILLIAMSON [9]). The specimen is described here and its probable identity is discussed.

Key words: Atlantic Ocean, Cape Verde Islands, plankton, Decapoda, Trapeziidae, zoea II.

1.- INTRODUCTION

RICE & WILLIAMSON [9] described unusual Brachyuran zoeas that they named ASM26 and attributed to either the Menippinae or the Trapezinae (then considered to be sub-families of the Xanthidae), from the Great Meteor Seamount (30°N, 29°W). In addition to dorsal, rostral and lateral spines on the carapace, these specimens had a smaller second pair of lateral spine placed more dorsally than the main pair and a very small pair below the main

pair. The first abdominal somite had a dorsal spine and somites 2-5 had prominent dorso-lateral projections, which were produced into backward pointing spines on somites 4 and 5. Somites 3-5 also had successively longer acute posterio-lateral spines. The specimens described were stage III and stage IV zoeas.

The *Macaronesia 2000* Programme included sampling in the Cape Verde Islands (Cruise TFMCBM/98). Results of analysis of Decapoda from this cruise have been presented by LINDLEY & HERNANDEZ [3 y 4] and LINDLEY *et al.* [5]. Among the specimens examined was a stage II zoea that appeared to be the same species as the specimens described by RICE & WILLIAMSON [9]. This specimen is described here to add to the descriptions of the two succeeding stages by those authors and their possible identity is discussed in the light of the occurrence of specimens apparently belonging to the same species in two locations separated by 14° latitude.

2.- METHODS

The specimen (code number TFMCBM-DL000444) was collected in a sample taken at station TFMCBMCV-24C98T (24°49'22"W & 16°38'54"N) at 15:55 h. (diurnal time) on 24th September 1998 with a triple WP-2 200µm mesh net hauled from 1000 m to the surface. The specimen was examined without dissection and is retained in the collection of the Natural Sciences Museum of Tenerife (TFMC).

3.- RESULTS

3.1.- Description and comparison with ASM26

An anterior view of the cephalothorax and a dorsal view of the abdomen and posterior view of the abdomen are shown in Fig 1. The carapace has rostral, dorsal and one major pair of lateral spines with a pair of about half their length above and a smaller pair below. The left major lateral spine had a small projection about about 1/3 of the distance from the base to the tip similar to that shown on the equivalent right spine of the stage IV illustrated by RICE & WILLIAMSON [9]. The lowest pair of lateral spines projected beyond the eyes in contrast with the stage IV. The dorsal spine on the first abdominal segment was more prominent than that in the stage IV. The dorso-lateral projections on somite 4 and 5 did not quite reach the end of those somites and the posterio-lateral projections on somite 4 did not reach the posterior margin of somite 5. In each case the projections extended beyond the somite margins in stage IV. The lateral spines on the telson were more prominent than were those of the stage IV. Some additional characters are summarised in Table I.

4.- DISCUSSION

The specimens described by RICE & WILLIAMSON [9] were from the Great Meteor Seamount which includes a plateau of <400m within which are areas of <300m and a minimum depth of 275m (HESTHAGEN, [2]). The Decapoda of the north-east Atlantic and adjacent seas and continental waters north of 25°N have been catalogued by UDEKEM D'ACOZ

[10]. He listed two species of Trapeziidae, both within the sub-family Domeciinae, *Coralliope parvula* (A. Milne-Edwards, 1869) and *Domecia acanthophora africana* Guinot, 1964. The former occurs as far north as the Azores and the latter is known from the Canary Islands and both occur in the Cape Verde Islands. The Menippinae would be included in the Eriphiidae, three species of which are listed by UDEKEM D'ACOZ (op. cit.), only two of which occur in the Atlantic Ocean. *Globopilumnus africanus* (A. Milne Edwards, 1867) is found in both the Cape Verde Islands and the Canary Islands but is generally littoral and is not recorded in depths greater than 35 m (GONZÁLEZ PEREZ, [1]), so it is unlikely to occur over the Great Meteor Seamount. The zoea stages of *Eriphia verrucosa* (Forskal, 1775) were described by LUMARE & GOZO [6]. They have slightly elongate dorso-lateral projections on the fourth and fifth abdominal somites, but less elongate than those of the present specimen and the stages described by RICE & WILLIAMSON [9] and they lack the dorsal spine on the first abdominal segments and the extra lateral carapace spines.

RICE & WILLIAMSON [9] and RICE [8] referred to the presence of a second pair of lateral spines in zoeas of *Tetralia glaberrima* (Herbst, 1790), a trapeziid, species as part of their justification for referring ASM26 to the Trapezinae. Since then, the first zoea of the *Stenorhynchus lanceolatus* (Brullé, 1837) (Majidae, Inachinae) has been described by PAULA [7] with three subequal conical spines on the carapace, but ASM26 and the present specimen are clearly Xanthoidea rather than Majoidea. We therefore tentatively attribute the specimens to the Trapeziidae, probably *Coraliope parvula* as it is recorded as far north as the Azores and has been recorded a greater depth (as deep as 355m) than *Domecia acanthophora africana* which is known only from the intertidal zone to 35m depth. The Great Meteor Seamount includes a plateau at <400m depth.

5.-ACKNOWLEDGEMENTS

Special mention to Dr. Juan José Bacallado Aránega (Head of the Program) and to Dr. Sebastián Jiménez Navarro for his collaboration in the *Macaronesia 2000* Program.

6.-REFERENCES

[1] GONZÁLEZ PÉREZ, J. A., 1995. *Crustáceos Decápodos de las Islas Canarias.* Publicaciones Turquesa. 1-282.

[2] HESTHAGEN, I. H., 1970. On the near bottom plankton and benthic invertebrate fauna of the Josephine Seamount and Great Meteor Seamount. *"Meteor" Forschungsergeb.* D 8, 61-70.

[3] LINDLEY, J. A. & F. HERNÁNDEZ, 1999. The occurrence in waters around the Canary and Cape Verde Islands of *Amphionides reynaudii*, the sole species of the Order Amphionidacea (Crustacea: Eucarida). *Rev. Acad. Canar. Ciencias.* XI, 113-119.

[4] LINDLEY, J.A. & F. HERNÁNDEZ, 2000. A previously undescribed zoea attributed to *Calcinus talismani* (Crustacea: Decapoda: Diogenidae). *Bocagiana,* 201, 1-5.

[5] LINDLEY, J.A., F. HERNÁNDEZ, E. TEJERA, S. & JIMÉNEZ, 2001. Decápodos pelágicos (larvas y adultos) de las Islas de Cabo Verde (campaña TFMCBM/98). *Rev. Acad. Canar. Cienc.* XIII (4) 87-99.

[6] LUMARE, F. & S. GOZZO, 1972. Svillupo larvale del crostaceo *Xanthidae Eripphia verrucosa* (Forskal, 1775) in condizione di laboratorio. *Boletine di Pesca, di Piscicoltura e di Idrobiologia.* 27, 185-209.

[7] PAULA, J., 1987. Planktonic stages of brachyuran crabs from the south-western Iberian coast. (Crustacea, Decapoda, Brachyura). *J. Nat. Hist.* 21, 717-756.

[8] RICE, A. L., 1980. Crab zoeal morphology and its bearing on the classification of the Brachyura. *Trans. Zool. Soc. Lond.* 35, 271-424.

[9] RICE, A. L. & D. I. WILLIAMSON, 1977. Planktonic stages of the Crustacea Malacostraca from Atlantic seamounts. *"Meteor" Forschungsergeb.* D. 26, 28-64.

[10] UDEKEM D'ACOZ, C. D'.,1999. Inventaire et distribution des Crustacés Décapodes de l'Atlantique nord-orientale, de la Mediterranée et des eaux continentales adjacent au nord de 25°N. *Patrimoines naturels (MNHN/SPN)* 40, 383pp.

CHARACTER	STAGE II	STAGE III	STAGE IV
Carapace length (mm)	0.75		
Tip of dorsal spine to tip of rostrum (mm)	2.0	3.5-3.7	4.7
Carapace width (between tips of major lateral spines) (mm)	1.5	2.4	2.8
Antenna	5-6 terminal or sub-terminal aesthetascs	About 6 terminal or sub-terminal aesthetascs, very small inner flagellum bud	Aesthetascs in groups of 4,2,4,2, outer flagellum cut off at base
Antennule	Exopod > ½ length of spinous process, with 3 unequal terminal setae	Endopod slightly less than ½ spinous process, Exopod intermediate in length with 3 unequal terminal setae	Spinous process and endopod about ¾ as long. subequal, exopod
Maxilliped 1 Exopod Endopod setae Basis setae	6 terminal setae 2,2,1,2,4 2,2,3,3	8 terminal setae 3,2,1,2,6 2,2,3,3	10 terminal setae 3,2,1,2,6 2,2,3,3
Maxilliped 2 Exopod Endopod setae Basis setae	6 terminal seta 1,1,3 3 (?) medial	8 terminal setae 1,1, 5 or 6 4 medial	10 terminal setae 1,1, 5 or 6 4 medial
Telson Posterior margin	3 long and 1 short pairs of setae.	3 long and 2 short pairs of setae.	3 long and 3 short pairs of setae.

Table I. Trapezinae. Zoea stages II , III and IV. Dimensions and setation of appendages. Data for Stages III and IV from RICE & WILLIAMSON [9].

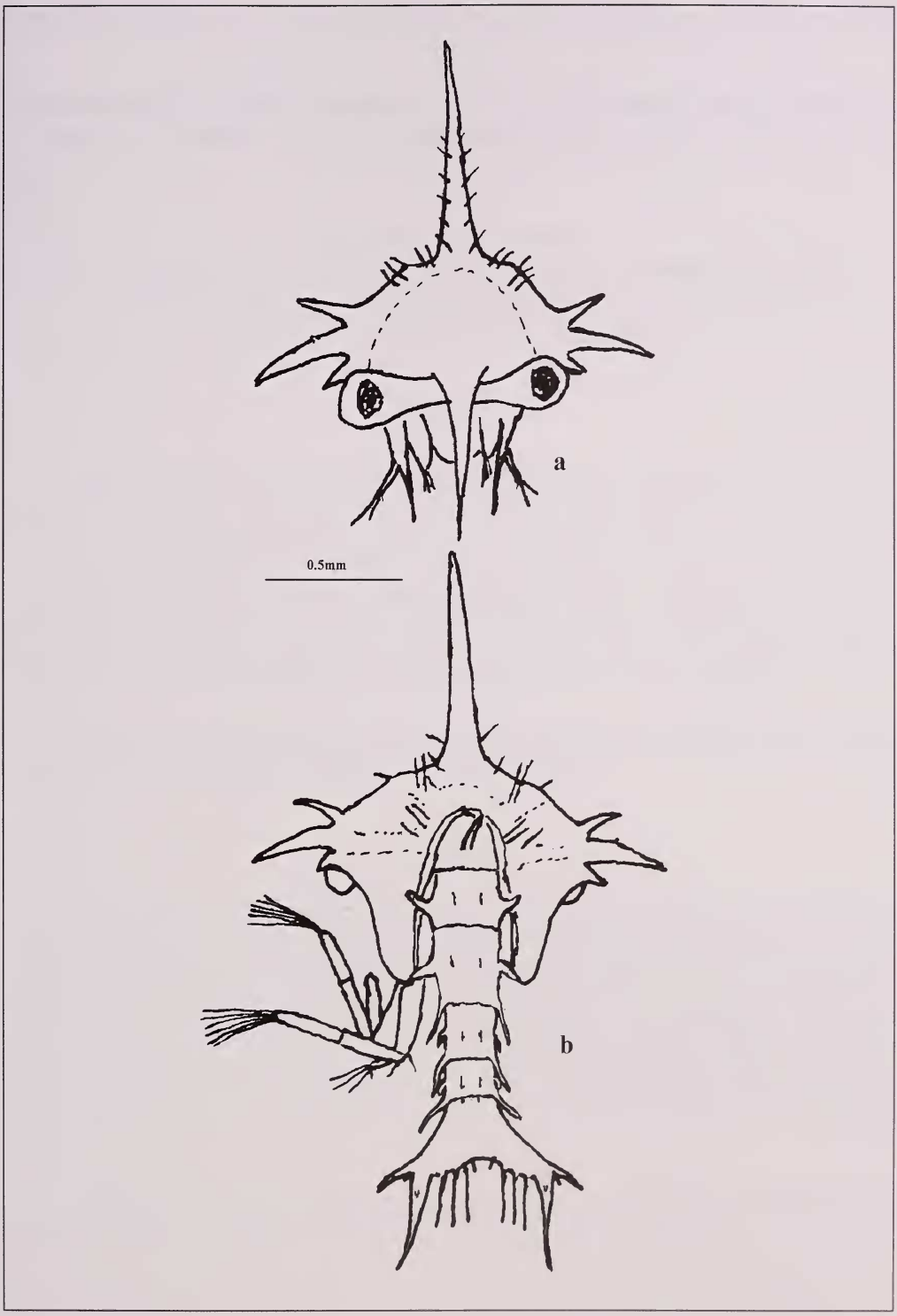

Figure 1. Zoea attributed to the Trapeziidae. (a) Frontal view. (b) Posterior view. Scale bar of 0.5 mm.